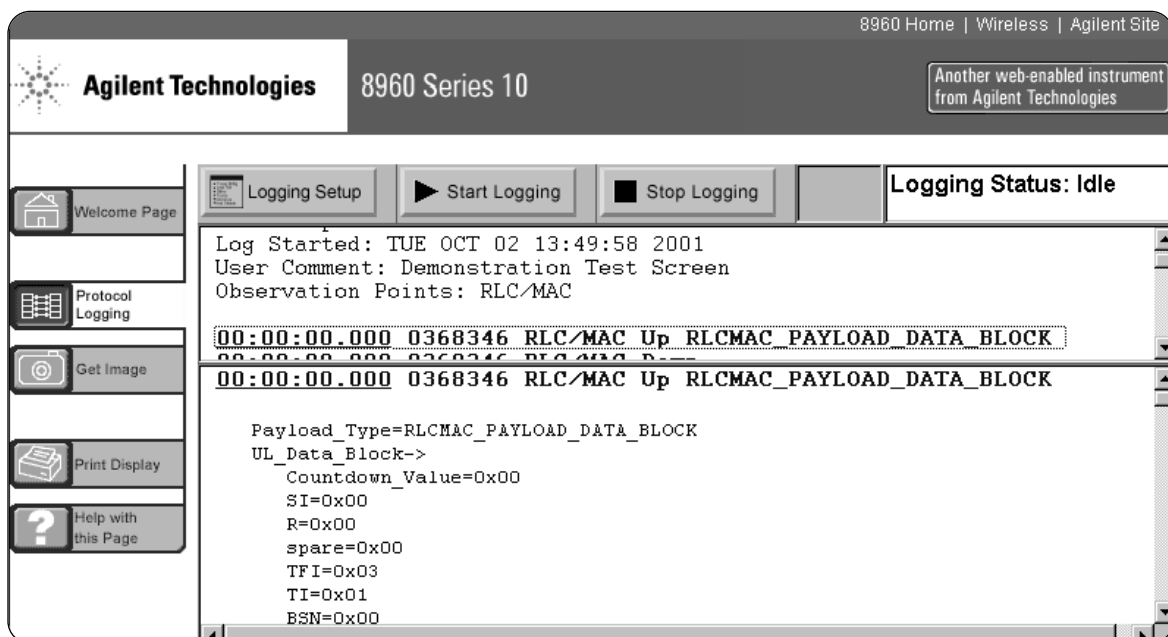


Agilent E6701A GPRS Lab Application

Demonstration Guide



This demonstration guide outlines how to setup and configure the test set, PC, and a phone. This guide contains two different setups and procedures.

- For a PC connected directly to a test set via a crossover LAN cable: This procedure is recommended for most demonstrations and allows you to use the phone's Web browser to access one artificial Web site.
- For a PC connected indirectly to a test set via an available Ethernet LAN: This procedure is more complicated. It often requires the network administrator of a local area network (LAN) to modify the LAN setup to assign addresses for various demo components. If the LAN is configured properly, this procedure allows you to use the phone's Web browser to access real Web sites.

This guide also demonstrates most of the features of the Agilent E6701A GPRS lab application.



Agilent Technologies

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1.0 Introduction

The Agilent Technologies E6701A lab application (LA) shortens the GPRS wireless appliance design cycle with a one-box solution for parametric and signaling design validation.

The E6701A LA is an option for the Agilent 8960 Series 10 (E5515B or E5515C) wireless communications test set. With this option, R&D integration engineers working on functional verification of GPRS wireless appliance firmware and hardware now have access to a flexible, comprehensive, and easy-to-use one-box solution for quickly and accurately validating a product's parametric and signaling design requirements.

The Agilent 8960 test set, an industry-standard product for testing cellular handsets, now accommodates many requirements of GPRS wireless appliance R&D engineers. The platform's new E6701A software retains the measurement and call processing capability of the E1964A GPRS mobile test application, which establishes a vital link between design and manufacturing. The ability to use the same equipment in R&D and production allows for a rapid and smooth transition from one phase in the product lifecycle to the next, as well as improves troubleshooting processes.

The test set's protocol logging capabilities facilitate testing and troubleshooting of new signaling features and data channels, so engineers can extract better information about their designs. Two-way IP data communication, when set up between a device and a network, provides real data flow on a real data channel, enabling R&D integration engineers to test more of the data handling performance of a GPRS device. Users of the E6701A can set timing advance and cell parameters, which allows for testing and troubleshooting issues related to timing and base station configuration.

2.0 Demonstration with a PC connected directly to a test set via a LAN crossover cable

2.1 Required equipment

The following equipment is needed for this demonstration:

- Agilent E5515B Opt. 002, E5515C Opt. 002, or E5515TU Opt. 002 (upgraded)
 - If the unit is an E5515B, check the serial number for compatibility:
 - A serial number beginning with a US prefix must be \geq US40410511.
 - A serial number beginning with a GB prefix must be \geq GB40410348.
 - If you have a lower serial number, contact Agilent for E5515B upgrade information.
- E6701A GPRS lab application
 - test set internal software, Rev. A.01.10 or higher
- E1960A GSM test application (optional)
 - test set internal software is useful when testing wireless devices with both GSM and GPRS capabilities
 - procedures using the E1960A test application are NOT included in this demonstration guide
- GPRS phone or other wireless appliance
 - Motorola Timeport™ 260 Series GPRS Mobile Phone with RF cable, battery, and battery charger (for standard Agilent demonstrations)
- Subscriber Identity Module (SIM) Card
 - Agilent test MicroSIM preferred (part number 08922-80048)
 - another test SIM may be substituted
- Windows® personal computer (PC)
 - PC hardware with an Ethernet LAN port
 - Microsoft® Windows 98 or Windows NT®, version 4.0 with Service Pack 5 or higher
 - other operating systems may work, but they are not supported
- Microsoft Internet Explorer® (version 5.0) Web browser:
 - other browsers may work and must support the following features:
 - support for nested frames
 - support for JavaScript (version 1.2 or higher)
 - support for tables
- WAP gateway software (for data connection and WAP server demonstrations)
 - Infinite WAPLite gateway from Captaris Inc. has been tested by Agilent, but is not endorsed or guaranteed by Agilent. (See *Appendix A: Installing a WAP Gateway into a PC* for Internet download instructions.)
- Crossover LAN cable
Agilent part number: 8121-0510, or Black Box® Part No. EVCRB05-0006; Category-5 Crossover Cables, 1.8 meters, 4-pair, RJ-45 connectors

2.2 Setup

Using a PC connected directly to a test set via a crossover LAN cable allows experimentation with all of the features of the Agilent E6701A product (but does not provide wireless appliance access to real Internet Web sites via the test set). Before you can perform this demonstration, you must configure the PC LAN, PC software, phone, and test set. For best results, perform the procedures in this exercise in the sequence outlined below.

If you want to demonstrate IP data connections, you must have a WAP gateway installed on your PC. To do this, go to *Appendix A: Installing a WAP Gateway into a PC*.

2.2.1 Equipment configuration

Connect cables as shown in Figure 1. If a LAN jumper cable already is connected on the rear panel of the test set, disconnect it.

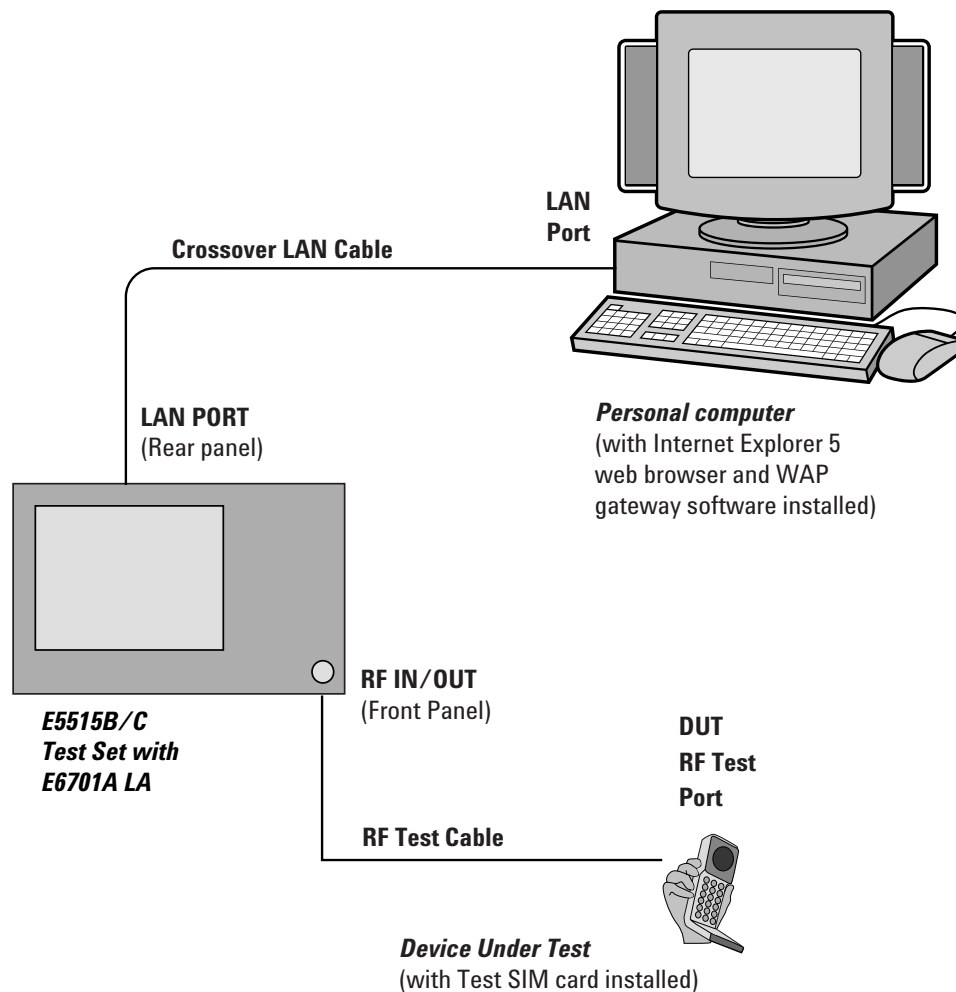


Figure 1. A PC connected directly to a test set via a LAN crossover cable

2.2.2 Test set adjustments

For consistent results with some PC network cards, turn off your PC before proceeding.

1. Turn on the test set.
2. Press the blue **Shift** key. Press the green **Preset** key to reset the test set.
3. Press the **System Config** key.
4. Verify the test application is *"GPRS Lab Application E6701A A.01.10"*.
Note: The version should be A.01.10 or higher for this demo.

If the E6701A is not the active test application, switch it:

- a. Press **Application Selection** (F3).
- b. Press **Application Switch** (F1) and wait a few seconds.
- c. In the table, use the knob to choose the **GPRS Lab Application**. If *"GPRS Lab Application"* is not found in the application table, then you must contact an Agilent office to order the E6701A software.
- d. Press the knob and choose **Yes** in the Switch Now? box.

The test set will reconfigure to use the GPRS LA. The power will cycle off, then back on, and the test set will re-start with the new GPRS LA. The re-start process requires about two minutes.

System Config Screen		
Configuration Summary		
Instrument Information		
Application:	GPRS Lab Application	
PRE-RELEASE	E6701A	A.01.04
Format:	GPRS	
GPIO Address:	14	
LAN IP Address:	130.29.183.125	
Subnet Mask:	255.255.248.0	
Default Gateway:	130.29.176.1	

5. Press the **System Config** key, then look in the Instrument Information box. Find the test set's LAN IP address, Subnet Mask, and Default Gateway. If they are already set to non-zero values, record their values on the lines in steps 8 through 10. If they are not already set, press **Instrument Setup** (F1) key. Scroll down and set these arbitrary values for the demonstration:
Example:
LAN IP Address to: 111.222.33.4
Subnet Mask to: 255.255.255.0
Default Gateway to: 111.222.33.1
6. Press the knob.
7. Press **Close Menu** (F6 key).
8. Record the test set's LAN IP address:

9. Record the test set's Subnet Mask:

10. Record the test set's Default Gateway:

Note: A gateway address must be entered. To define an arbitrary gateway address, enter *almost* the same address as the test set's LAN IP address, except change the fourth set of digits to the integer "one".

Example:

Test Set LAN IP Address 100.200.050.020
Test Set Default Gateway 100.200.050.1

11. Press **Instrument Setup** (F1 key).
12. Scroll down and set the date in yyyy.mm.dd format (example: 2002.11.5 = November 5, 2002). If you set the correct date and time here, then protocol logs will include the correct date and time. Press the knob and edit the date, then press the knob to set it.
13. Scroll down and set the time in hh.mm 24-hour format (example: 17.46 = 5:46 PM)
14. Press **Close Menu** (F6 key).
15. Press **RF IN/OUT Amptd Offset** (F5 key).
16. Press **RF IN/OUT Amptd Offset Setup** (F2 key).

Typically, it is alright to leave the RF In/Out Amplitude Offset State Value as "*Off*" for this demo. If it is "*On*", check that reasonable values are entered in the table for the phone's RF test cable.

17. Press **Close Menu** (F6 key).
18. Press the **Call Setup** key.
19. On the Call Parm's (right) column of softkeys, change Cell Power (F7) to **-50 dBm**. For Agilent demo phones (typically a Motorola Timeport®), the test set's default settings should work fine:

Cell Band (F8):	PGSM
Broadcast Chan (F9):	20

For other wireless appliances, change the band and channel as necessary.

20. On the Control (left) column of softkeys, press the **Data Conn Type** (F4) key.
21. Change the Data Conn Type to **IP Data**.
22. On the Control column, press the **More** key until you see "*2 of 2*".
23. Press the **DUT PDP Setup** key (F2) and then press the knob. This step sets the IP address that the test set will assign to the DUT, usually a GPRS phone.
24. Enter *almost* the same address as the test set's LAN IP address except change the fourth set of digits to an integer between 1 and 254. Enter it in the field labeled "*DUT IP Address*".

Example:

Test set's LAN IP address	111.222.33.4
Phone's DUT IP address	111.222.33.5

IMPORTANT: The DUT IP address and the test set's LAN IP address cannot be the same. Do not set the fourth set of numbers to 0 or to a set of numbers greater than 254. Additionally, the entered DUT IP address must be on the same subnet as the test set. (The test set's Subnet Mask was recorded on step 9 in section 2.2.2)

25. After the IP address is entered, press the knob.
26. Record the DUT IP address that you entered:

-
27. Press the **Close Menu** (F6) key.

2.2.3 PC settings

Turn on the PC. If the machine is already on, turn off any running applications. If necessary, enter your Windows' password to begin using the PC. Based on your operating system, follow the appropriate instructions below for adjusting your PC settings.

2.2.3.1 Windows 98

This procedure assumes you are using a standalone PC (not connected to a network) using the Microsoft Windows 98 operating system. Other PC configurations may use slightly different setups.

- Go to the Control Panel and choose the **Internet Options** icon.
- Select the **Connections** tab.
- Select the **LAN Settings** box. In the Automatic Configuration section, both "*Automatically detect settings*" and "*Use automatic configuration script*" must NOT be checked. In the Proxy Server section, "*Use a proxy server*" must NOT be checked.
- Select **OK**, then **OK** again to exit the Internet Options menu.
- Choose the **Network** icon.
- Select the **Configuration** tab.

- In the scroll box labeled "The following network components are installed:", highlight your Ethernet network device.
- Select the **Properties** box.
- In the TCP/IP Properties box, select the **IP Address** tab and **Specify an IP Address**. Enter *almost* the same address as the test set's LAN IP address, except change the fourth set of digits to an integer between 1 and 254. Enter it in the field labeled IP address.

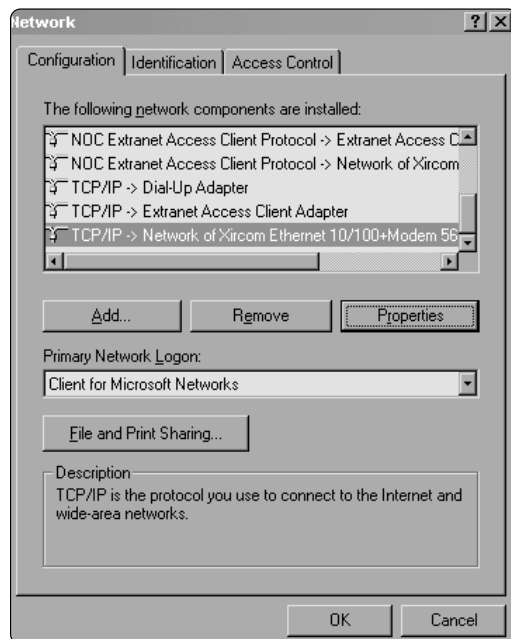
Example:

Test set IP address	111.222.33.4
Set the PC IP address	111.222.33.6

- Record your PC IP address below:
Your PC IP address is:

IMPORTANT: The DUT's IP address, the test set's LAN IP address, and the PC's IP address cannot be the same. Do not set the fourth set of numbers to 0 or to a set of numbers greater than 254. (In the example above, the fourth set of numbers is set to "6".)

- In the Subnet Mask field, set the PC subnet mask to 255.255.255.0.
- Select **OK**, then **OK** again to exit the Network menu. If you made changes, a System Settings Change box will appear.
 - Select the **Yes** box to restart your PC.
 - Skip to section 2.2.4.



2.2.3.2 Windows 2000

This procedure assumes you are using a standalone PC (not connected to a network) using the Microsoft Windows 2000 operating system. Other PC configurations may use slightly different setups.

- Go to the Control Panel and choose the **Internet Options** icon.
- Select the **Connections** tab.
- Select the **LAN Settings** box. In the Automatic Configuration section, both *“Automatically detect settings”* and *“Use automatic configuration script”* must NOT be checked. In the Proxy Server section, *“Use a proxy server”* must NOT be checked. Select **OK**, then **OK** again to exit the Internet Options menu.
- Choose the **Network and Dial-up Connections** icon.
- Select the **Local Area Connection** icon.
- Select **Properties**.
- Highlight *“Internet Protocol (TCP/IP)”* and select **Properties**.
- Select **Use the following IP Address**. Enter *almost* the same address as the test set's LAN IP address, except change the fourth set of digits to an integer between 1 and 254. Enter the value in the field labeled *“IP Address”*.

Example:

Test set IP address 111.222.33.4
Set the PC IP address 111.222.33.6

- Record the PC's IP address below:
Your PC's IP address is:

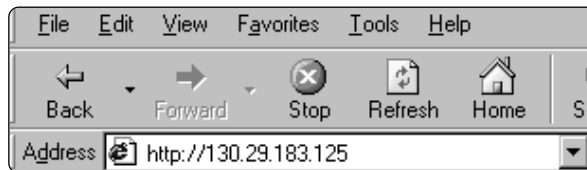
IMPORTANT: The DUT's IP address, the test set's LAN IP address, and the PC's IP address cannot be the same. Do not set the fourth set of numbers to 0 or to a set of numbers greater than 254. (In the example above, the fourth set of numbers is set to “6”.)

- In the Subnet Mask field, set the PC subnet mask to 255.255.255.0.
- Select **OK**, then **OK** again to exit the Network and Dial-up Connections menu.

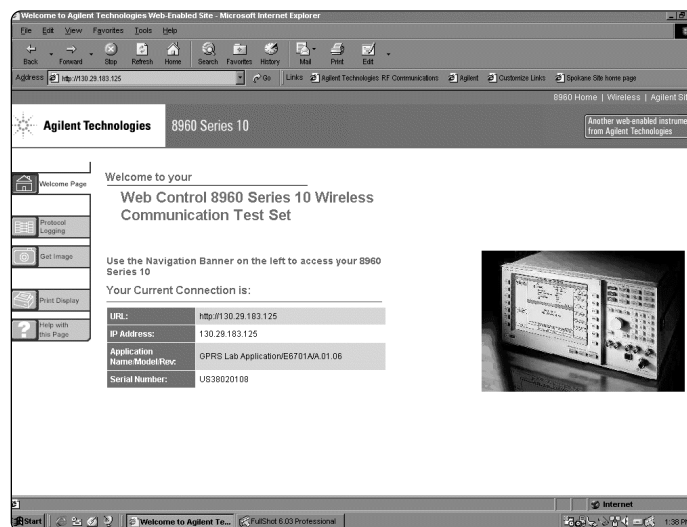
2.2.4 Verify PC settings

On the PC, start Microsoft Internet Explorer software. If you get a message saying *“Work Offline”* or *“Try Again”*, choose the **Try Again** box. If the PC tries to access a homepage, press the **Stop** icon.

On the PC, enter the LAN IP address of the test set (recorded on step 8 in section 2.2.2); then press **Enter**. If you get a message saying *“Work Offline”* or *“Try Again”*, choose the Try Again box.



The 8960 web page should display.



2.2.5 Verify GPRS attach function

Verify your phone or wireless appliance will perform a GPRS attach using the procedures below. These instructions assume you are using a Motorola Timeport 260 Series GPRS Mobile Phone. Other devices will require similar setups, often found under the Menu structure of the phone in the WAP Settings section. If necessary, follow the phone manufacturer's instructions to install the test SIM into the phone or wireless appliance.

1. Turn on the phone or wireless appliance. The phone should indicate service signal-strength bars (in the upper left corner of the display) within about one minute.
2. It should also indicate the numbers "001-01" or the word "TEST" in the center of the display (this is the default test network number stored in the test set).
3. On the test set, in the bottom center of the display, the Active Cell box should show: "Attached". If it does, skip to section 2.2.6.

If the phone does not show service, check the phone for a label indicating a different cell band or broadcast channel, and enter those into the test set. Check that the phone's band matches the test set's cell band.

4. For the Motorola Timeport phone, press the phone's **Menu** key briefly.
 - a. Scroll to **Network Selection** with the up/down arrow key.
 - b. Press **OK** key to View Options? (The phone should display "Change Band".)
 - c. Press **OK** key to View Options?
 - d. Scroll to "Change to 900/1800".
 - e. Press **OK** key to **Select?** If the phone still doesn't show service, look in *Appendix B: Troubleshooting*.

2.2.6 Modifying phone settings

To demonstrate data connection functions, the phone settings must be modified. *Note:* Some older versions of Motorola Timeport phones may lose the IP address entered in this section. Check this whenever you turn on the phone.

1. After the phone is attached, press the phone's **Menu** key briefly.
2. When the display shows "Access Internet / Select?", press the **OK** key to select.
3. Hold down the **Menu** key for about three seconds and release.
4. On the Browser Menu, scroll to **7 >Setup** with the up/down arrow key and press **OK**. If the phone hasn't been setup yet, it will display a list of profiles such as "profile1". Use the up/down arrow key to highlight **profile1** (or another unused profile location), or overwrite a previous profile.
5. Press the **OK (Sel)** key, then wait a few seconds until the phone returns to the profile menu.
6. Press the **Menu (Edit)** key.
7. On the profile1 menu, scroll to 1>WAP Settings and press the **OK** key to **Edit**.

		Active Cell:		Sys Type: GPRS			
		Attached		Logging: Idle			
1 of 2						1 of 4	

8. On the WAP Settings menu, scroll to 1>Primary IP and press the **OK** key to **Edit**.

Use the number keys to enter the PC IP address. (To find your PC IP Address:

- for Windows 98 see step 2.2.3.1-j.
- for Windows 2000 see step 2.2.3.2-i.)

This tells the phone where to find its primary server. Use the left arrow (*) and right arrow (#) keys to move among the numbers. Use the **C** key to clear (or delete) a number.

Note: On the Motorola Timeport phone, you must insert leading zeros so the IP address consists of 12 numbers. The decimal points between the numbers are entered automatically by the phone for this specific function.

Example:

If your PC IP address	111.222.33.6
Enter this in the Motorola Timeport phone	111.222.033.006

9. Write the IP address you entered in the phone here:
-

10. Press the **OK** key when finished.
11. Also on the WAP Settings menu, scroll to 2>Primary Port and press the **OK** key to **Edit**.
12. Under Enter Port:, edit the number to **9201**. This is the default value, and should already be in the data field. Press the **OK** key when finished.
13. Press the **C** key to return to the Profile menu.
14. On the Profile menu, scroll to 2>Data Bearer and press the **OK** key to **Edit**.
15. Scroll to 1>GPRS. This is the default value, and should already be in the data field. Press the **OK** key to **Edit**. It is OK if the APN, username, and password are all blank.
16. Press the **C** key three times to return to the Browser Menu. Use the scroll key to move to the top of this menu.

17. If you are using the Infinite WAPLite Gateway software in *Appendix A: Installing a WAP Gateway into a PC*, follow these steps to set the phone's browser to find the WAPLite homepage on your PC. (If not, skip to step 18 below.)
- Scroll to 2>Web Favorites and press **OK**.
 - Scroll to choose an unused http Web address (or overwrite an old one).
 - Press the **Menu (Edit)** key.
 - Under "Enter URL:", enter **http://local/waplite.wml**. Editing addresses like this is an awkward process on the phone, because you must switch among the alphabetic, numeric, and multiple symbol menus to enter all of the characters. Be patient. (Press the **Menu** key to switch among **alpha**, **NUM**, and **SYM** key sets. While on a **SYM** set, press the **OK (SYM)** key to select among **SYM1**, **SYM2**, **SYM3**, and **SYM4** character sets).
 - Press the **OK** key when finished.
18. Press the lowest button on the left side of the phone to exit the phone's browser (the upper buttons are the volume controls). You will see the phone's turn-on display (usually shows "001-01"). The phone is still attached.
19. Turn the phone off. Note: After you turn off the phone, you typically cannot turn it back on for about ten seconds.
20. Setup is complete.

If you adjust IP addresses for the demonstration, remember to set them back to the original settings when the demonstration is finished so that the devices will work on their normal networks.

2.3 Product feature: Screen image capture

To retrieve a copy of the test set's current screen, go to the 8960 Web control page on your PC and select the **Get Image** icon.



Once the image is obtained, clicking the image again will capture a new screen (or refresh the image). Since normal Windows functions are available for the image, you can save the image by right-clicking the image and using the browser's Save Picture As... feature. You also can choose a GIF or bitmap file format. To close the image, click the **X** in the upper-right corner of the window.

2.4 Product feature: Protocol logging

The E6701A GPRS lab application enables the test set to log GPRS protocol messages. The log results are displayed in a Web page format. You control which messages are logged by choosing observation points. It is important to remember these points about the log data:

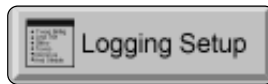
- you are using the PC to access this data
- the data is formatted to be read by a Web browser (such as Internet Explorer®) on the PC
- you cannot view the log data on the test set's display
- to save log data, you must store it in the PC's memory, which you will learn how to do in section 2.4.4 *Saving log data in the PC*.
- there is only one logging memory location in the test set for log data, of about 4 MB size
- if you select **Start Logging** again, any previous data in the memory location will be overwritten
- you can log while using any of the data connection types in the test set: IP Data, ETSI A, ETSI B, and BLER

2.4.1 Using protocol logging

To use protocol logging, from the PC use the 8960 Web control page and select the **Protocol Logging** icon.



Next, use the **Logging Setup** icon to select the setup.



Change the observation points and buffer operation. (*Note: At least one observation point must be selected.*) The observation points correspond to seven protocol layers you can log. (Refer to Table 1.) Logging data will only be collected for layers that have been selected prior to the start of logging. For this demonstration, select **GMM/SM** and **GSM_L3**. Make sure the other observation points are NOT selected.

Table 1. Observation points and corresponding protocol layers

L1_Interface	Raw information between the DUT and test set
RLC/MAC	Access and control messages
LLC	Unnumbered and supervisory messages
GMM/SM	Attach, detach, security, and PDP context messages
GSM_L3	Common control channel messages
SNDCP	Network-level messages
IP	IP datagram data and control fields

2.4.2 Buffer operation

1. To demonstrate the buffer operation select **Linear**. The linear buffer stops the log when the logging memory location is full. The cyclic buffer writes over the oldest data once it is full.
2. Next, scroll to the bottom of the page and enter a user comment if desired to annotate the log. The comment must use alphanumeric characters only and be up to 74 characters in length. Select **OK** to save the setup and return to the main logging page.
3. Select the **Start Logging** icon.



4. Turn on the phone's power to perform a switch-on and attach. The phone should indicate service signal-strength bars in the upper-left corner of the display within about one minute. It should also indicate the numbers "001-01" or the word "Test" in the center of the display. This is the default test network number stored in the test set. On the test set, in the bottom center of the display, the active cell box should show "Attached".
5. On the PC, select the **Stop Logging** icon. Note that no data will be displayed until the log is stopped. The test set has captured the log data in its internal memory.

2.4.3 Examining log data on the PC

Look in the PC's upper window using the scroll bar to see the message summary. If you click on one of the message summaries, a hyperlink will launch in the lower window to show you the detail for that message.

Look in the lower window using the scroll bar to see the message details. Notice the time stamp and message number at the front of each message. Refer to the *E6701A Lab Application User's Guide* for more details on logged messages.

2.4.4 Saving log data in the PC

Use the following steps:

1. At the top left corner of the Internet Explorer window, select **File**, then **Save As**.
2. On the Save Web Page window, choose a directory.
3. To more easily find your log files, point to the file icon to **Create New Folder**, then select it.
4. For this demonstration, type "E6701A Demo Logs" as the name for your new folder, then press **Enter**.
5. Double-click your new folder; "E6701A Demo Logs" will be shown in the Save In box.
6. In the File Name box, enter "Good Stuff1" as the name for this demonstration's log. (Note: You must highlight the entire default filename to replace it.)
7. Leave Save As type: box at default - Web Page, complete (*.htm, *.html)
8. Leave Encoding: box at default - Western European (ISO)
9. Select **Save**.

2.4.5 Viewing saved data

1. Open Windows Explorer (the file manager program).
2. Find the **E6701A Demo Logs** folder you created, and double-click it. You should find that a sub-folder was created using the file name you used, with the following contents: a file folder named "Good Stuff1_files", and a file named "Good Stuff1.htm".
3. To look at all your log data, double-click on the file **Good Stuff1.htm**. Internet Explorer will start, and display a web page. You can scroll through this data and use the hyperlinks just like on the original web page.
4. Close this Internet Explorer window and return to Windows Explorer.

2.4.6 Looking at message details

Open the folder **Good Stuff1_files**. Double-click to open the **logpage_files** sub-folder. Double-click on the **logdtl.htm** file. Internet Explorer will start, and display a web page that contains the detailed messages. Close this Internet Explorer window and go back to Windows Explorer.

2.4.7 Looking at the message summary

Double-click on the **logsum.htm** file. Internet Explorer will start, and display a web page that contains the summary messages. (It is also located in the folder Good Stuff1_files, in the logpage_files sub-folder). Close this Internet Explorer window.

2.4.8 Log capture using panel keys

You can also capture a log using the front-panel keys of the test set and retrieve it later with the PC's browser. This function is performed as follows:

1. On the PC, go back to the active Internet Explorer browser with the 8960 web control page.
2. Select the **Protocol Logging** icon.
3. Turn off the phone.
4. On the test set, on the Call Setup screen, on the left Control column of softkeys, press the **More** key until you see "2 of 2".
5. Choose **Protocol Logging** (F1).
6. Choose from the selections to **Start**, **Stop**, and **Modify** the setup. (Note that these keys are identical to the PC browser logging functions.)
7. Select the **GMM/SM** and **GSM_L3** observation points again.
8. Watch the PC display after you press the test set's **Start Logging** (F1) softkey.
9. Turn the phone on.

The PC display will update as new data is captured in the test set. (Also, at the beginning of each log, the "Log Started" time will change.) On the test set, press the **Stop Logging** (F1) softkey. Wait a few moments for the PC display to be updated as new data is captured in the test set.

2.5 Product feature: Ping

Ping is a tool to help check system interconnects. Ping is only available in IP data mode. The test set uses ping to send a 64-byte packet to the device being pinged. If the connection is good, then the device will return a packet to the test set and the packet transfer information is displayed on the test set's screen.

2.5.1 Protocol logging while pinging

The ability to make a protocol log while performing a ping to a DUT (phone) is a valuable feature. This feature is performed as follows:

1. On the test set, go to the **Call Setup** screen.
2. On the Control (left) column of softkeys, verify that the Data Conn Type (F4) is set to **IP Data**.
3. On the Control column softkeys, press the **More** key until you see "2 of 2".
4. Press the **Ping** (F3) key.

Note: The test set can only log data that travels through the RF link, such as a DUT ping.

2.5.2 Pinging an alternate device

The E6701A allows an alternate device, such as your PC on the LAN, to be pinged. However, you cannot log an alternate device ping because the data does NOT travel through the RF link, but only via the LAN. To ping an alternate device use the following steps:

1. Press the **Ping Setup** (F1) key.
2. In the Ping Setup table, set the device to **Ping to Alternate**.
3. In the Ping Setup table, scroll to **Alternate Ping Address** and press the knob.
4. Under Value, enter the LAN IP address of your PC (Refer to section 2.2.3 PC settings.) Do not enter leading zeros.
5. Press the knob.
6. Press the **Start Ping** (F3) key. It may take a moment for the PC to respond.

Call Setup Screen	
Ping Control	Ping
Ping Setup ▾	64 bytes from 130.29.183.22 : icmp_seq = 0 , time = 0ms
	64 bytes from 130.29.183.22 : icmp_seq = 1 , time = 0ms
	64 bytes from 130.29.183.22 : icmp_seq = 2 , time = 0ms

A correct response looks like the image above. This indicates a functioning IP connection exists between the test set and the PC.

7. Press **Stop Ping** (F3) key.
8. On the test set, at the bottom of the display, note the summary results data from the ping.

2.5.3 Pinging the DUT

Pinging the DUT, such as a phone or wireless appliance, can be done as follows. You can log a DUT ping because the data travels through the RF link.

1. In the protocol logging setup, set the observation point to **IP**.
2. Start logging.
3. Press the **Ping Setup** (F1) key again.
4. Set the device to **Ping to DUT**.
5. Because it may take a phone over five seconds to respond, set the Ping Timeout value to ten (seconds).
6. Verify that the test set active cell field indicates "Attached".
7. Press the phone's **Menu** key briefly.
8. When the display shows "Access Internet/Select?", press the **OK** key to select.
9. Hold down the **Menu** key for about three seconds and release.

10. On the test set, in the bottom center of the display, the Active Cell box should show "PDP Active" or "Transferring", this is required in order to Ping. (Note: "PDP Active" is the same as "PDP_Context Active".)
11. Press **Start Ping** (F3) key.
12. A correct response looks like the image below.

This indicates a functioning IP connection exists between the test set and the phone via the RF link. Note that the response time of the phone is variable. (Ignore any GPRS data connection errors.)

13. Press **Stop Ping** (F3) key.
14. If you started a protocol log, stop it, then look at the data on the PC.

Call Setup Screen	
Ping Control	Ping
Ping Setup ▾	64 bytes from 130.29.183.2 : icmp_seq = 0 , time = 1383ms
	64 bytes from 130.29.183.2 : icmp_seq = 1 , time = 0ms
	64 bytes from 130.29.183.2 : icmp_seq = 2 , time = 2617ms
	64 bytes from 130.29.183.2 : icmp_seq = 3 , time = 3367ms

2.6 Product feature: Data channel

This is one of the most useful and powerful features of the E6701A. The test set acts as a GPRS base station, for connection to one wireless appliance at a time, with complete connectivity through to outside GGSNs. A GGSN provides the gateway between the GPRS network and the public packet data network such as the internet. This means you can quickly and easily connect a wireless device to your choice of real Internet Web sites through a simple LAN connection to the Internet.

You can also perform protocol logging during data channel operation.

Even though IP data is usually discontinuous, the E6701A allows you to make TX and RX parametric measurements during data channel operation.

This demonstration uses a Wireless Application Protocol (WAP) browser built into the phone to show how IP datagrams can be transmitted and received. Data will be exchanged using WML (Wireless Markup Language), which is derived from HTML for wireless device use. Using the phone's WAP browser, you will connect to a standalone WAP proxy gateway program running on your PC.

2.6.1 Running gateway software

To run the infinite WAPLite proxy gateway software on your PC:

1. Choose **Start**.
2. Choose **Programs**.
3. Choose the **WAPLite** directory
4. Select **WAPLite**. In the window with multiple tabs, select **Options**.
5. The box next to Use HTTP Proxy Server should NOT be checked; additionally, other boxes on this tab should NOT be checked.
6. At the bottom of the tab, if the word "*Apply*" is in black letters, click the **Apply** box. If "*Apply*" is in gray letters, skip this step.
7. On the Stats tab, click on **Install Service** to turn on the WAP Gateway software on your PC.

With the WAPLite software running on your PC, external devices can access this gateway server via the PC LAN port. The WAPLite server has one set of test data (a logo and some text) provided with the software that can be accessed by an external WAP browser, which is designed into most GPRS phones.

2.6.2 Browsing the gateway

To browse the WAPLite gateway with the phone:

1. On the test set, press the **Call Setup** key. Note: The Motorola Timeport phone should be on and attached to the test set.
2. The phone's display should show the Browser menu. If the phone's Browser menu is not displayed, press the phone's **Menu** key briefly.
3. When the display shows "*Access Internet/Select?*" press the **OK** key to select.
4. Hold down the **Menu** key for about three seconds and release.
5. On the Browser menu, scroll to **2>Web Favorites** with the up/down arrow key and press **OK**.

6. Scroll to **http://local/waplite.wml** and press **OK**. (The phone requests data from the device at the address above.)

Watch the test set display. At the bottom, in the active cell window, you can note the status will switch between "*PDP active*" and "*transfer-ring*" as IP datagrams are sent back and forth between the phone and the WAPLite server on the PC.

Note the three sections of the display:

- a. downlink power will flash each time the test set transmits to the phone
 - b. counters track data packets and RACHs
 - c. error reports continuously indicate the quality of the wireless appliance links. The BLER is measured using the Agilent-patented ACK/NACK method.
7. On the phone's display, look at the downloaded image and use the **scroll up/down** key to read the text. If you get a web server error, press the phone's **OK** button to go **Back** to see the image, and quickly scroll to see the text. (There appears to be a bug in the WAPLite data download in some versions.)
 8. Press the **C** key three times to return to the Browser menu.

Note: This WAPLite image and text is the only information accessible by a WAP browser that is stored in the Infinite WAPLite gateway at installation. On the PC, note that the Infinite WAPLite window shows one active user, and lists some requests processed.

2.6.3 Logging datagrams while browsing

During a log of IP datagram while you are browsing the WAPLite gateway with the phone, the LAN cable will carry IP datagrams between the phone and the WAP gateway software running on the PC. Simultaneously, the same LAN cable will carry the protocol logging data between the test set and the Internet Explorer software running on the PC.

1. On the PC, go to the active Internet Explorer browser with the 8960 web control page and select **Logging Setup** to change the observation points.
2. Select **IP** (only) and **OK**.
3. Select the **Start Logging** icon.
4. On the phone, on the Browser menu, scroll to **2>Web Favorites** with the up/down arrow key, then press **OK**.
5. Scroll to **http://local/waplite.wml** and press **OK** to **Go**. The phone requests data from the device at the address above. Watch the test set's display as the active cell window switches between "*PDP active*" and "*transferring*" as IP datagrams are sent back and forth between the phone and the WAPLite server on the PC.
6. On the phone's display, look at the downloaded image by using the **scroll up/down** key to read the text.
7. If you get a web server error, press the phone's **OK** button to go **Back** to see the image, and quickly scroll to see the text. (There appears to be a bug in the WAPLite data download in some versions.)
8. Select the **Stop Logging** icon and examine the log data on the PC.

To demonstrate WAP browsing of real Internet sites, follow the instructions for *3.0 Demonstration with a PC connected to a test set via a LAN*.

2.6.4 Disconnecting the gateway

When you complete your WAP demonstration, disable the WAPLite software to give you the maximum trial usage period. To turn off the WAP gateway software in your PC:

1. On the **Stats** tab, click on **Remove Service**.
2. When it asks "*Are you sure?*", select **Yes**. Wait a few moments until the software shuts down and indicates "*Active Time: Not Active*".
3. Click **OK** to exit the program.

2.7 Product feature: Additional connection parameters

2.7.1 Changing the broadcast channel configuration

Cell Parameters – The broadcast channel (BCH) configuration can be changed as desired.

1. Turn the phone off.
2. On the test set, on the Call Setup screen, select **Operating Mode** (F1 key).
3. Scroll to **Cell Off** and press the knob to select.
4. Select **Cell Info** (F6 key).
5. Select **Cell Parameters** (F2 key).
6. Change the Cell Parameters table values as desired.
7. Press **Close Menu** (F6 key).
8. Press **Return** (F6 key).
9. Press **Operating Mode** (F1 key).
10. Scroll to Active Cell and press the knob to select.

2.7.2 Timing advance

Timing advance values can be sent to the DUT. This feature allows you to simulate propagation delays by telling the DUT how much to offset its transmission timing. On the test set, on the Call Setup screen, on the right, Call Params column:

1. Press the **More** key until you see "*4 of 4*".
2. Press the **Connection Parameters** (F7) key.
3. Scroll in the Connection Parameters table to **Timing Advance**.

The default value is 0; the range is 0 to 63.

2.7.3 User-settable uplink flag

The User-Settable Uplink Flag (USF) can be set. In a real network, this variable allows the multiplexing of several wireless appliances onto a single uplink PDCH. This parameter tells the wireless appliance when it must transmit and receive. The test set can verify that the wireless appliance performs correctly. (Remember: only one wireless appliance can be in a "connected state" with the test set at a time). On the test set, on the Call Setup screen, on the right, Call Params column:

1. Press the **More** key until you see "*4 of 4*".
2. Press the **Connection Parameters** (F7) key.
3. Scroll in Connection Parameters table to Uplink State Flag. The default value is 0. The range is 0 to 7.

3.0 Demonstration with a PC connected to a test set via a LAN

This demonstration allows experimentation with all of the features of the Agilent E6701A product, including wireless appliance access to “real” Web sites via the test set. For best results, perform these procedures in sequence.

3.1 Required equipment

The following equipment is needed for this demonstration:

- Agilent E5515B Opt. 002 or E5515C Opt. 002, or E5515TU Opt. 002 (upgraded)
- If unit is E5515B, check serial number for compatibility:
 - A serial number beginning with a US prefix must be \geq US40410511.
 - A serial number beginning with a GB prefix must be \geq GB40410348.
 - Contact Agilent for E5515B upgrade information if you have a lower serial number.
- E6701A GPRS lab application test set internal software; Rev. A.01.10 or higher
- E1960A GSM test application (optional)
 - test set internal software is useful when testing wireless devices with both GSM and GPRS capabilities
 - procedures using the E1960A test application are NOT included in this demonstration guide
- GPRS phone or other wireless appliance
 - Motorola Timeport 260 Series GPRS mobile phone with RF cable, battery, and battery charger (for standard Agilent demonstrations)
- Subscriber Identity Module (SIM) card
 - Agilent test MicroSIM preferred (part number 08922-80048)
 - another test SIM may be substituted
- Windows PC
 - PC hardware with an Ethernet LAN port
 - Microsoft Windows 98 or Windows NT, version 4.0 with Service Pack 5 or higher
 - other operating systems may work, but they are not supported
- Microsoft Internet Explorer (version 5.0) Web browser
 - other browsers may work, but require the following features:
 - support for nested frames
 - support for JavaScript (version 1.2 or higher)
 - support for tables
- WAP gateway software (for data connection and WAP server demonstrations)
 - The following has been tested by Agilent, but is not endorsed or guaranteed by Agilent. (See *Appendix A* for Internet download instructions.)
 - Infinite WAPLite Gateway (Captaris Inc.)
- Standard LAN cables (quantity 2)
- Category-5 cables, 4-pair, RJ-45 connectors

3.2 Setup

Before you can perform this demonstration, you must configure the PC LAN, PC software, phone, and the test set. This is done using the following procedures. If you adjust IP addresses for the demonstration, remember to set them back to the original settings when the demo is finished so that the devices will work on their normal networks. If you want to demonstrate Internet Web browsing with IP data connections, you must have a WAP gateway installed on your PC. To do this, refer to Appendix A.

3.2.1 Required addresses

Before you can do this demonstration, contact your Network Administrator. Many LANs use a combination of static (fixed) and dynamic DHCP (variable) IP addresses while others use only static IP addresses.

If your network uses only static addresses, ask for three static IP addresses to use during your demonstration, as well as the subnet mask and gateway. Record the address information in the spaces provided to the right.

If your network uses static and dynamic addresses, ask for two static IP addresses for use during your demonstration, as well as the subnet mask and gateway. Record the address information below.

IP address #1
(for the test set's LAN address):

IP address #2
(for the DUT IP address):

IP address #3
(for the PC's LAN address if static):

Network Subnet Mask:

Network Gateway:

3.2.2 Equipment configuration

To perform this demonstration, equipment cables should be connected as shown in Figure 2. On the test set, if a LAN jumper cable is connected on the rear panel, disconnect it.

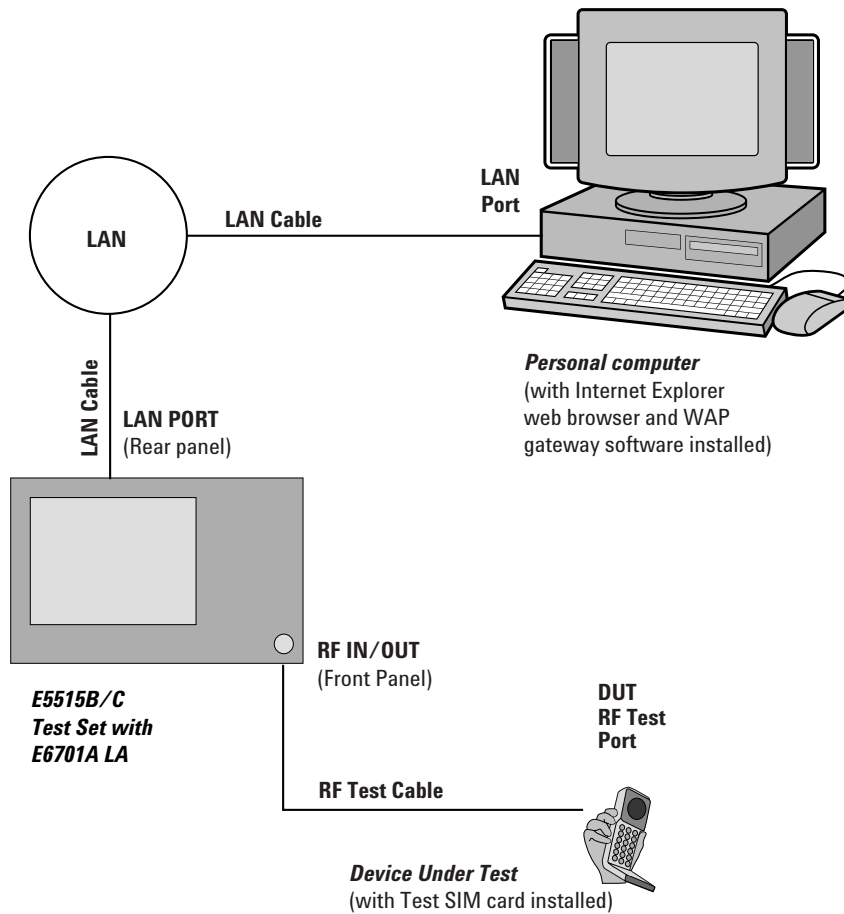


Figure 2. PC Connected to a test set via a LAN

3.2.3 Test set adjustments

1. Turn on the test set.
2. Press the blue **Shift** key. Press the green **Preset** key to reset the test set.
3. Press **System Config** key.
4. Verify the test application is "GPRS Lab Application, E6701A, A.01.10".
Note: The version should be A.01.10 or higher for this demo. If it is not, some functions may be missing, or may cause firmware malfunctions.
5. If the E6701A is not the active test application, press **Application Selection** (F3). Then press **Application Switch** (F1) and wait a few seconds.
6. In the table, use the knob to choose the **GPRS Lab Application**. (If "GPRS Lab Application" is not found in the application table, then you must contact an Agilent office to order the E6701A software.)
7. Press the knob.
8. Choose **Yes** in the Switch Now? box. The test set will reconfigure to use the GPRS LA.
9. The power will cycle off, then back on, and the test set will re-start with the new GPRS LA. The re-start process requires about two minutes.
10. Press the **System Config** key, then look in the Instrument Information box.
11. Press **Instrument Setup** (F1) key.
12. Scroll down and enter the LAN IP address using IP address #1 recorded in section 3.2.1.
13. Enter the Subnet Mask of your network recorded in section 3.2.1.
14. Enter the Default Gateway of your network recorded in section 3.2.1.
15. Scroll down and set the date in yyyy.mm.dd format. For example, 2002.11.5 = November 5, 2002. (If you set the correct date and time here, then protocol logs will include the correct date and time.)
16. Press the knob.
17. Edit the date, then press the knob to set it.
18. Scroll down and set the time in hh.mm 24-hour format. For example, 17.46 = 5:46 PM.
19. Press the **Close Menu** (F6) key.
20. Press **RF IN/OUT Amptd Offset** (F5) key.
21. Press **RF IN/OUT Amptd Offset Setup** (F2) key. Typically, it is alright to leave the RF In/Out Amplitude Offset State Value set to "Off" for this demonstration. If it is "On", check that reasonable values are entered in the table for the phone's RF test cable.
22. Press the **Close Menu** (F6) key.
23. Press **Call Setup** key.
24. On the Call Parm's (right) column of softkeys, change Cell Power (F7) to **-50 dBm**. For Agilent demonstration phones (typically a Motorola Timeport), the test set default settings should work fine:
Cell Band (F8): PGSM
Broadcast Chan (F9): 20
For other wireless appliances, change the band and channel as necessary.
25. On the Control (left) column of softkeys, press the **Data Conn Type** (F4) key and change it to **IP Data**.
26. On the Control column, press the **More** key until you see "2 of 2".
27. Press the **DUT PDP Setup** key (F2); then press the knob (PDP = Packet Data Protocol).
28. Enter the DUT IP address using IP address recorded in section 3.2.1.
29. Press the knob.
30. Press the **Close Menu** (F6) key.

System Config Screen		
Configuration Summary		
Instrument Information		
Application:	GPRS Lab Application	
PRE-RELEASE	E6701A	A.01.04
Format:	GPRS	
GPB Address:	14	
LAN IP Address:	130.29.183.125	
Subnet Mask:	255.255.248.0	
Default Gateway:	130.29.176.1	

3.2.4 PC settings

Your network determines the PC's IP address. Some IP addresses may be static, while other systems use a dynamic assignment (DHCP) of your PC's IP address each time you log on. Depending on IP addressing method, follow the correct procedure below to adjust your PC settings.

3.2.4.1 DHCP IP address assignment

1. Turn on your PC.
2. Log in to your network with your normal password.
3. Log in to Windows if needed. Wait until the initial Windows "wallpaper" and icons appear.
4. Turn off any running applications.
5. Follow the instructions that correspond to the operating system you are using.

Windows 98 (DHCP)

- a. Go to the **Control Panel**.
- b. Choose the **Internet Options** icon.
- c. Select the **Connections** tab.
- d. Select the **LAN Settings** box.
- e. In the Automatic Configuration section, both "*Automatically detect settings*" and "*Use automatic configuration script*" must NOT be checked. In the "Proxy server" section, "*Use a proxy server*" must be checked in most situations. *Note:* If your network does not utilize a firewall, or if you experience connection problems, un-check this box.
- f. If you checked "*Use a proxy server*" for your LAN enter your normal network proxy server address, or try one of these: **web-proxy.cos.agilent.com**, or **web-proxy**. Enter the port: **8088**. Select **OK**, then **OK** again to exit the Internet Options menu.
- g. Skip to section 3.2.5.

Windows 2000 (DHCP)

- a. Go to the **Control Panel**.
- b. Choose the **Internet Options** icon.
- c. Select the **Connections** tab.
- d. Select the **LAN Settings** box.
- e. In the Automatic Configuration section, both "*Automatically detect settings*" and "*Use automatic configuration script*" must NOT be checked. In the Proxy Server section, "*Use a proxy server for your LAN*" must be checked in most situations. *Note:* If your network does not utilize a firewall, or if you experience connection problems, un-check this box.
- f. If you checked "*Use a proxy server for your LAN*", enter your normal network proxy server address, or try one of these: **web-proxy.cos.agilent.com**, or **web-proxy**. Enter the port: **8088**. Select **OK**, then **OK** again to exit the Internet Options menu.
- g. Skip to section 3.2.5.

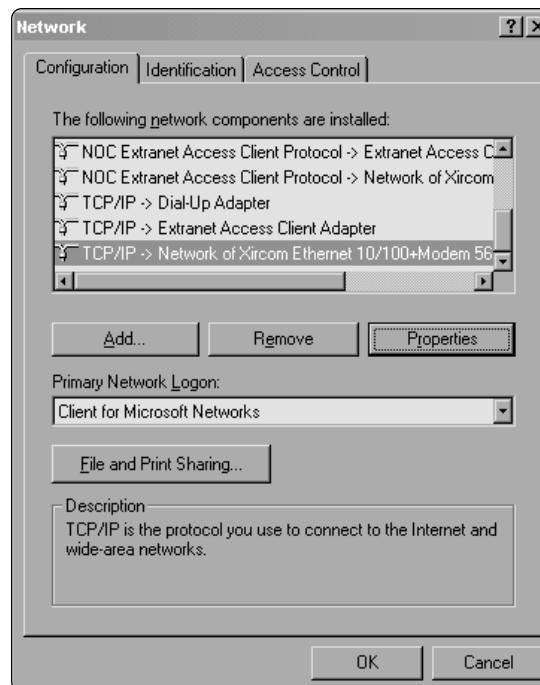
3.2.4.2 Static IP addresses

This procedure assumes your PC connects to an Ethernet LAN using static, fixed assignment of your PC's IP address.

1. Turn on your PC.
2. If necessary, log into your network with your normal password.
3. If necessary, log into Windows. Wait until the initial Windows "wallpaper" and icons appear.
4. Turn off any running applications.
5. Based on the operating system you are using, follow the instructions below.

Windows 98 (static)

- a. Go to the **Control Panel**.
- b. Choose the **Internet Options** icon.
- c. Select the **Connections** tab.
- d. Select the **LAN Settings** box. In the Automatic Configuration section, both "*Automatically detect settings*" and "*Use automatic configuration script*" must NOT be checked. In the Proxy Server section, "*Use a proxy server*" must be checked in most situations. *Note:* If your network does not utilize a firewall, or if you experience connection problems, un-check this box.
- e. If you checked "*Use a proxy server*" enter your normal network proxy server address, or try one of these: **web-proxy.cos.agilent.com**, or **web-proxy**. Enter the port: **8088**. Select **OK**, then **OK** again to exit the Internet Options menu.
- f. Choose the **Network** icon.
- g. Select the **Configuration** tab.
- h. In the scroll box labeled "*The following network components are installed:*" highlight your Ethernet network device.
- i. Select the **Properties** box.
- j. In the TCP/IP Properties box, select the **IP Address** tab.
- k. Select **Specify an IP Address**.
- l. Enter the PC's IP address using IP Address #3 recorded in section 3.2.1. In the Subnet Mask: field, we recommend you set the PC subnet mask to **255.255.255.0**.
- m. Select **OK**, then **OK** again to exit the Network menu.
- n. If you made changes, a System Settings Change box will appear. Select the "Yes" box to Restart your PC.
- o. Skip to section 3.2.5.



Windows 2000 (static)

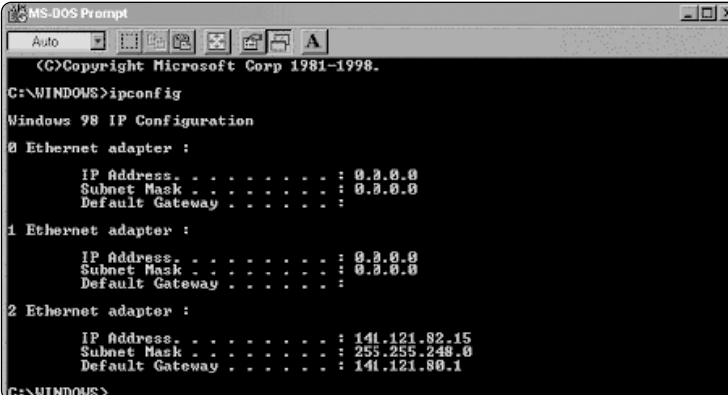
- a. Go to the **Control Panel**.
- b. Choose the **Internet Options** icon.
- c. Select the **Connections** tab.
- d. Select the **LAN Settings** box.
- e. In the Automatic Configuration section, both “*Automatically detect settings*” and “*Use automatic configuration script*” must NOT be checked. In the Proxy Server section, “*Use a proxy server for your LAN*” must be checked in most situations. *Note:* If your network does not utilize a firewall, or if you experience connection problems, un-check this box.
- f. If you checked “*Use a proxy server for your LAN*” enter your normal network proxy server address, or try **web-proxy.cos.agilent.com**, or **web-proxy**. Enter the port: **8088**. Select **OK**, then **OK** again to exit the Internet Options menu.
- g. Choose the **Network and Dial-up Connections** icon.
- h. Select the **Local Area Connection** icon.
- i. Select **Properties**.
- j. Highlight **Internet Protocol (TCP/IP)**.
- k. Select **Properties**.
- l. Select **Use the following IP Address**.
- m. Enter the PC’s IP address using IP address #3 recorded in section 3.2.1. In the Subnet Mask field, we recommend you set the PC subnet mask to **255.255.255.0**. Select **OK**, then **OK** again to exit the Network and Dial-up Connections menu.

3.2.5 Verify the PC IP address

For Windows 98, go to Windows Start, then Programs, then choose the MS-DOS Prompt icon. (For Windows 2000, go to Windows Start, then Programs, then Accessories, then choose the Command Prompt icon).

1. On the MS-DOS command line, enter “*ipconfig*”. Displayed results will vary depending upon your PC’s configuration. If multiple Ethernet adapters are displayed, locate your active Ethernet LAN adapter by its title.
2. Record the Ethernet adapter IP address. This is the IP address assigned to your PC:

If multiple adapters are displayed, the other IP addresses should be listed as 0.0.0.0. If they are not, refer to *Appendix B: Troubleshooting*.



```
C:\WINDOWS>ipconfig

Windows 98 IP Configuration

0 Ethernet adapter :
   IP Address. . . . . : 0.0.0.0
   Subnet Mask . . . . . : 0.0.0.0
   Default Gateway . . . . . :

1 Ethernet adapter :
   IP Address. . . . . : 0.0.0.0
   Subnet Mask . . . . . : 0.0.0.0
   Default Gateway . . . . . :

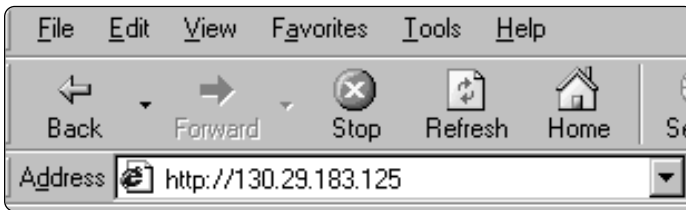
2 Ethernet adapter :
   IP Address. . . . . : 141.121.82.15
   Subnet Mask . . . . . : 255.255.248.0
   Default Gateway . . . . . : 141.121.80.1

C:\WINDOWS>
```

3. Close the MSDOS window.

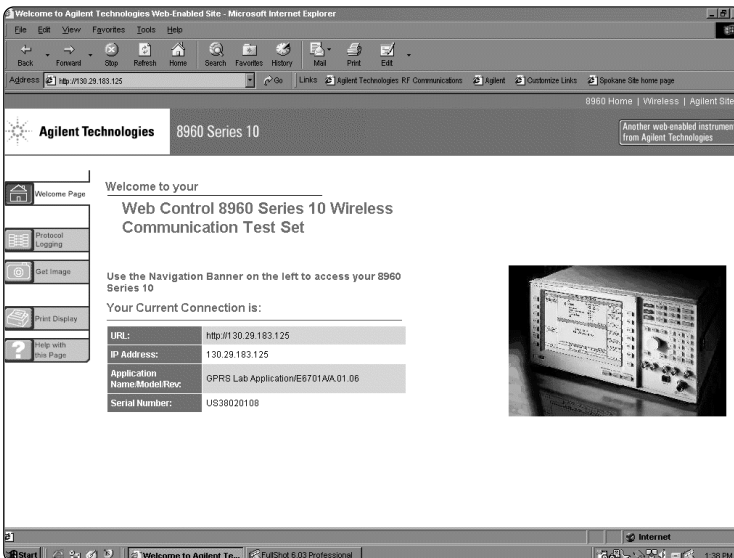
3.2.6 Verify PC settings

1. On the PC, start Microsoft Internet Explorer software. If you get a message saying “*Work Offline*” or “*Try Again*”, choose the **Try Again** box. If applicable, allow the PC to access its normal homepage.
2. On the PC, enter the LAN IP address of the test set (recorded in section 3.2.1); then press **Enter**. If you get a message saying “*Work Offline*” or “*Try Again*”, choose the **Try Again** box. The 8960 web page should display.



3.2.7 Verify GPRS attach function

1. If necessary, follow the manufacturer’s instructions to install the test SIM into the phone or wireless appliance.
 - The phone should indicate service signal-strength bars (in the upper left corner of the display) within about one minute.
 - It also should indicate the numbers “001-01” or the word “*Test*” in the center of the display. This is the default test network number stored in the test set.
2. Turn on the phone or wireless appliance.
 - On the test set, in the bottom center of the display, the active cell box should show “*Attached*”. If it does, skip to section 3.2.8.



		Active Cell:		Sys Type: GPRS			
		Attached		Logging: Idle			
1 of 2						1 of 4	

3. If the phone does not show service, check the phone for a label indicating a different Cell Band or Broadcast Channel, and enter those into the test set.
4. Check that the phone’s band matches the test set’s Cell Band.
 - a. For the Motorola Timeport phone, press the phone’s **Menu** key briefly.
 - b. Scroll to **Network Selection** with the up/down arrow key.
 - c. Press **OK** key to “*View Options?*”.
 - d. The phone should display “*Change Band*”.
 - e. Press **OK** key to “*View Options?*”. Scroll to “*Change to 900/1800*”. Press **OK** key to **Select?**.
 - f. If the phone still doesn’t show service, look in *Appendix B: Troubleshooting*.

3.2.8 Modify phone settings to demonstrate data connection functions

These instructions assume you are using a Motorola Timeport 260 Series GPRS Mobile Phone. Other devices will require similar setups. Note: Some older versions of Motorola Timeport phones may lose the IP address entered in this section. Check this whenever you turn on the phone.

1. After the phone is attached, press the phone's **Menu** key briefly.
2. When the display shows "Access Internet / Select?", press the **OK** key to select.
3. Hold down the **Menu** key for about three seconds and release.
4. On the Browser Menu, scroll to **7 >Setup** with the up/down arrow key and press **OK**. If the phone hasn't been setup yet, it will display a list of profiles such as "profile1". Use the up/down arrow key to highlight **profile1** (or another unused profile location), or overwrite a previous profile. Press the **OK (Sel)** key, then wait a few seconds until the phone returns to the profile menu.
5. Press the **Menu (Edit)** key.
6. On the profile1 menu, scroll to **1>WAP Settings** and press the **OK** key to **Edit**.

7. On the WAP Settings menu, scroll to **1>Primary IP** and press the **OK** key to **Edit**. Use the number keys to enter the PC IP address (as recorded for PC IP address in section 3.2.5). This tells the phone where to find its primary server. Use the left arrow (*) and right arrow (#) keys to move among the numbers. Use the **C** key to clear (or delete) a number.

Note: on the Motorola Timeport phone, you must insert leading zeros so the IP address consists of 12 numbers. The decimal points between the numbers are entered automatically by the phone for this specific function.

Example:

If your PC IP address 111.222.33.4
Enter this in the phone 111.222.033.004

8. Write the IP address you entered in the phone here:
-
9. Press the **OK** key when finished.
 10. Also on the WAP Settings menu, scroll to **2>Primary Port:**. Press the **OK** key to **Edit**. Under **Enter Port:** edit the number to **9201**. This is the default value, and should already be in the data field. Press the **OK** key when finished. Press the **C** key to return to the profile1 menu.
 11. On the profile1 menu, scroll to **2>Data Bearer**. Press the **OK** key to **Edit**. Scroll to **1>GPRS**. This is the default value, and should already be in the data field. Press the **OK** key to **Edit**. It is alright if the APN, Username, and Password are all blank. Press the **C** key three times to return to the Browser Menu. Use the scroll key to move to the top of this menu.

12. If you are using the Infinite WAPLite Gateway software from *Appendix A: Installing a WAP Gateway into a PC*, perform the following steps. (If not, skip to step 14 below.) To set the phone's browser to find the WAPLite homepage on your PC:
 - a. Scroll to **2>Web Favorites** and press the **OK** key.
 - b. Scroll to choose an unused http web address (or overwrite an old one).
 - c. Press the **Menu (Edit)** key
 - d. Under **Enter URL:**, enter the following address:
"http://local/waplite.wml".
Editing addresses like this is an awkward process on the phone, because you must switch among the alphabetic, numeric, and multiple symbol menus to enter all of the characters. Be patient. (Press the **Menu** key to switch among alpha, NUM, and SYM key sets. While on a **SYM** set, press the **OK (SYM)** key to select among **SYM1**, **SYM2**, **SYM3**, and **SYM4** character sets).
13. Once the address is entered, press the **OK** key.
14. Press the lowest button on the left side of the phone to exit the phone's browser (the upper left-side buttons are the volume controls). You will see the phone's turn-on display (usually shows "001-01"). The phone is still attached.
15. Turn the phone off. *Note:* After you turn off the phone, you typically cannot turn it back on for about ten seconds.
16. Setup is complete.

3.3 Product feature: Screen image capture

To illustrate the screen image capture feature, follow these steps:

1. On the PC, on the 8960 Web control page, select the **Get Image** icon. This button retrieves a copy of the test set's current screen.



2. Click the image again to capture a new screen (or refresh the image). Normal Windows functions are available for the image. You can save the image by right-clicking the image and using the browser's "Save Picture As..." feature and choosing to save the image in a GIF or bitmap file format.
3. To close the image, click the **X** in the upper-right corner of the window.

3.4 Product feature: Protocol logging

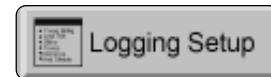
The E6701A GPRS lab application enables the test set to log GPRS protocol messages. The log results are displayed in a web page format. You control which messages are logged by choosing observation points. Here are some important points about the log data.

- You are using the PC to access this data.
- The data is formatted to be read by a web browser, such as Internet Explorer, in the PC. *Note:* You cannot view the log data on the test set's display.
- To save this log data, you must store it in the PC's memory, which you will learn to do in section 3.4.3).
- There is only one logging memory location in the test set for log data, which holds about 4 MB.
- If you select **Start Logging** again, any previous data in the memory location will be overwritten.
- You can log while using any of the data connection types in the test set: IP Data, ETSI A, ETSI B, or BLER.

1. On the PC, on the 8960 Web control page, select the **Protocol Logging** icon.



2. Select **Logging Setup**.
3. Change the observation points and buffer operation. *At least one observation point must be selected.* For this demonstration, select **GMM/SM** and **GSM_L3** and make sure the other observation points are NOT selected.



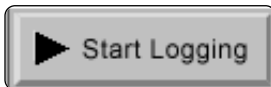
As shown in Table 2, observation points correspond to seven protocol layers you can log. Logging data will only be collected for layers that have been selected prior to the start of logging.

Table 2. Observation points and corresponding protocol layers

L1_Interface	Raw information between the DUT and test set
RLC/MAC	Access and control messages
LLC	Unnumbered and supervisory messages
GMM/SM	Attach, detach, security, and PDP context messages
GSM_L3	Common control channel messages
SNDCP	Network-level messages
IP	IP datagram data and control fields

3.4.1 Buffer operation

1. Select **Linear**. The Linear buffer stops the log when the logging memory location is full. The **Cyclic buffer** writes over the oldest data once it is full.
2. Scroll to the bottom of the page.
3. Enter a user comment if desired to annotate the log. This can be up to 74 characters in length and must be alphanumeric characters only.
4. Select **OK** to save the setup and return to the main logging page.
5. Select the **Start Logging** icon.



6. Turn on power to the phone to perform a switch-on and attach. The phone should indicate service signal-strength bars in the upper-left corner of the display within about one minute. It should also indicate the numbers "001-01" or the word "Test" in the center of the display, which is the default test network number stored in the test set. On the test set, in the bottom center of the display, the active cell box should show "Attached".
7. Select the **Stop Logging** icon.
Note that no data will be displayed until the log is stopped. The test set has captured the log data in its internal memory.

3.4.2 Examining the log data on the PC

1. Look in the PC's upper window using the scroll bar to see the Message Summary. If you click on one of the message summaries, a hyperlink will launch in the lower window to show you the detail for that message.
2. Look in the lower window using the scroll bar to see the Message Details. Notice the time stamp and message number at the front of each message. Refer to the *E6701A Lab Application User's Guide* for more details on logged messages.

3.4.3 Saving the log data

To save this log data in the PC, follow these steps.

1. At the top left corner of the Internet Explorer window, select **File**, then **Save As**.
2. On the Save Web Page window, choose a directory. To more easily find your log files, select the **Create New Folder** icon.
3. For this demonstration, name your New Folder: "E6701A Demo Logs" then press the **Enter** key. Double-click your new folder. "E6701A Demo Logs" is shown in the Save in box above.
4. In the File name box, enter a different name for this log. For this demo, use "Good Stuff1". (Note: You must highlight the entire default filename to replace it).
5. Leave **Save as type:** box at default—Web Page, complete (*.htm, *.html)
6. Leave **Encoding:** box at default – Western European (ISO)
7. Select the **Save** button.

3.4.4 Viewing the saved data

1. Open Windows Explorer (the file manager program).
2. Find the **E6701A Demo Logs** folder you created, and double-click it. You should find that a sub-folder was created using the file name you used, with the following contents: a file folder named "*Good Stuff1_files*", and a file named "*Good Stuff1.htm*".
3. To look at all your log data, double-click on the file **Good Stuff1.htm**. Internet Explorer will start, and display a web page. You can scroll through this data and use the hyperlinks just like on the original web page.
4. Close this Internet Explorer window and go back to Windows Explorer.

3.4.5 Looking at message details

The following steps allow you to look at just the message details.

1. Open the folder **Good Stuff1_files**.
2. Double click to open the **logpage_files** sub-folder
3. Double click on the **logdtl.htm** file. Internet Explorer will start and display a web page that contains the detailed messages.
4. Close this Internet Explorer window and go back to Windows Explorer.

3.4.6 Looking at the message summary

The following steps allow you to look at just the message summary.

1. Double click on the **logsum.htm** file. Internet Explorer will start, and display a web page that contains the summary messages. (It is also located in the folder Good Stuff1_files, in the logpage_files sub-folder).
2. Close this Internet Explorer window.

3.4.7 Log capture using front-panel keys

Note that you can also capture a log using the front-panel keys of the test set, and retrieve it later with the PC's browser.

1. On the PC, go back to the active Internet Explorer browser with the 8960 Web control page.
2. Turn off the phone.
3. On the test set, on the Call Setup screen, on the left Control column of softkeys, press the **More** key until you see "*2 of 2*".
4. Choose **Protocol Logging** (F1 key).
5. Choose from the selections to **Start**, **Stop**, and **Modify** the setup. Note that these keys are identical to the PC browser logging functions.
6. Select the **GMM/SM** and **GSM_L3** observation points again.
7. Watch the PC display after you press the test set's **Start Logging** softkey (F1).
8. Turn the phone on. The PC display will update as new data is captured in the test set. Also, at the beginning of each log, the log started time will change.
9. On the test set, press the **Stop Logging** softkey (F1). Wait a few moments. The PC display will update as new data is captured in the test set.

3.5 Product feature: Ping

Ping is a tool to help check system interconnects. Ping is only available in IP Data mode. The test set uses Ping to send a 64-byte packet to the device being pinged. If the connection is good, then the device will return a packet to the test set and the packet transfer information is displayed on the test set's screen. The ability to make a protocol log while performing a ping to a DUT is a valuable feature. (Note that the test set can only log data that travels through the RF link, such as a DUT ping).

1. On the test set, go to the **Call Setup** screen.
2. On the left Control column of softkeys, press the **More** key until you see "2 of 2".
3. Press the **Ping** (F3) key.

Call Setup Screen	
Ping Control	Ping
Ping Setup ▾	64 bytes from 130.29.183.22 : icmp_seq = 0 , time = 0ms
	64 bytes from 130.29.183.22 : icmp_seq = 1 , time = 0ms
	64 bytes from 130.29.183.22 : icmp_seq = 2 , time = 0ms

3.5.1 Pinging the alternate device

When pinging an alternate device, such as the PC on the LAN, it's important to note that you cannot log an alternate device ping because the data does NOT travel through the RF link, but only via the LAN.

1. Press the **Ping Setup** (F1) key.
2. In the Ping Setup table, set the device to ping to **Alternate**.
3. In the Ping Setup table, scroll to **Alternate Ping Address**, and press the knob.
4. Under Value, enter the LAN IP address of your PC (recorded in section 3.2.5 step 2). Do not enter leading zeros.

5. Press the knob.
6. Press **Start Ping** (F3) key. It may take a moment for the PC to respond. A correct response looks like the image above. This indicates a functioning IP connection exists between the test set and the PC. If the PC doesn't respond, check *Appendix B: Troubleshooting*.
7. Press **Stop Ping** (F3) key. On the test set, at the bottom of the display, note the summary results data from the ping.

3.5.2 Pinging the DUT

When pinging a DUT such as a phone or other type of wireless appliance, it's important to note that you can log a DUT Ping because the data travels through the RF link. Set the observation point to **IP**, start logging, and then perform the ping below.

1. Press the **Ping Setup** (F1) key again.
2. In the Ping Setup table set the device to **Ping to DUT**. Because it may take a phone over five seconds to respond, set the **Ping Timeout Value** to ten (seconds).
3. Verify that the test set's active cell field indicates *"Attached"*.
4. Press the phone's **Menu** key briefly.

Call Setup Screen	
Ping Control	Ping
Ping Setup ▾	64 bytes from 130.29.183.2 : icmp_seq = 0 , time = 1383 ms
	64 bytes from 130.29.183.2 : icmp_seq = 1 , time = 0 ms
	64 bytes from 130.29.183.2 : icmp_seq = 2 , time = 2617 ms
	64 bytes from 130.29.183.2 : icmp_seq = 3 , time = 3367 ms

5. When the display shows *"Access Internet / Select?"*, press the **OK** key to select.
6. Hold down the **Menu** key for about three seconds and release. On the test set, in the bottom center of the display, the active cell box should show *"PDP Active"* or *"Transferring"*. This is required in order to ping. (Note: *"PDP Active"* is the same as *"PDP_Context Active"*.)
7. Press the **Start Ping** (F3) key. A correct response looks like the image above. This indicates a functioning IP connection exists between the test set and the phone via the RF link. Note that the response time of the phone is variable. (Ignore any GPRS data connection errors.) If the DUT does not respond, try turning the phone off, then back on and then repeat steps 4 through 7.
8. Press the **Stop Ping** (F3) key. If you started a protocol log, stop it and look at the data.

3.6 Product feature: Data channel

This is one of the most useful and powerful features of the E6701A. The test set acts as a GPRS base station, for connection to one wireless appliance at a time, with complete connectivity through to outside GGSN's. (A GGSN provides the gateway between the GPRS network and the public packet data network such as the Internet). This means you can quickly and easily connect a wireless device to your choice of real Internet Web sites through a simple LAN connection to the Internet.

You can also perform protocol logging during data channel operation, and even though IP data is usually discontinuous, the E6701A allows you to make TX and RX parametric measurements during data channel operation.

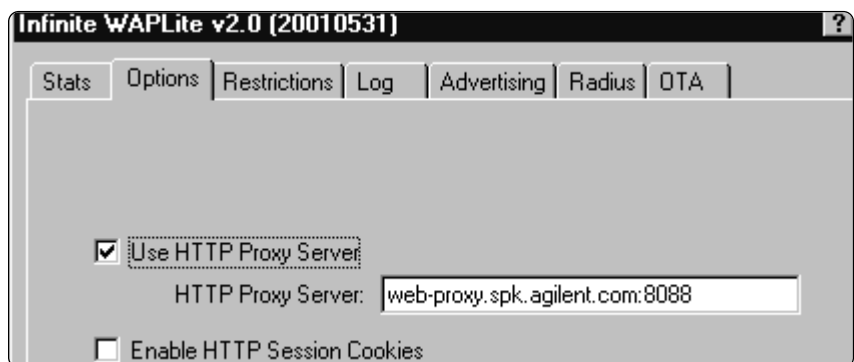
This demonstration uses a WAP browser built into the phone to show how IP datagrams can be transmitted and received. Data will be exchanged using WML, which is derived from HTML for wireless device use.

Using the phone's WAP browser, you will connect to a WAP proxy gateway program running in your PC. The WAP gateway program will "pass through" the Internet addresses that you enter into the phone's browser, and will act as a go-between for data between the phone and the Internet.

3.6.1 Running the Infinite WAPLite proxy gateway software on a PC

1. Choose **Start** on your PC.
2. Choose **Programs**.
3. Choose the **WAPLite** directory.
4. Select **WAPLite**. A window will appear with multiple tabs, select the **Options** tab.
5. If your LAN does not use a firewall to access the Internet, skip to step 8 below. If your LAN uses a firewall to access the Internet, check the box next to "Use HTTP Proxy Server". Other boxes on this tab should NOT be checked.
6. Type the name of a valid proxy server in the box next to "HTTP Proxy Server:". For this Agilent demonstration, use web-proxy.cos.agilent.com: 8088.
7. At the bottom of the tab, if the word "Apply" is in black letters, click the **Apply** box (if "Apply" is in gray letters, skip to step 9 below).
8. If your LAN DOES NOT use a firewall to access the Internet, un-check the box next to "Use HTTP Proxy Server". Other boxes on this tab should NOT be checked. At the bottom of the tab, if the word "Apply" is in black letters, click the **Apply** box (if "Apply" is in gray letters, skip this step).
9. On the **Stats** tab, click on **Install Service** to turn on the WAP gateway software on your PC.

With the WAPLite software running on your PC, external devices, such as a phone, can access this gateway server via the PC LAN port. The WAPLite server has one set of local "test" data (a logo and some text) provided with the software that can be accessed by an external WAP browser.



3.6.2 Accessing a simple local file on the WAPLite gateway with the phone

1. On the test set, press the **Call Setup** key. The Motorola Timeport phone should be on and attached to the test set. The phone's display should show the Browser Menu. If the phone's Browser Menu is not displayed, press the phone's **Menu** key briefly.
2. When the phone's display shows "*Access Internet / Select?*", press the **OK** key to select.
3. Now hold down the **Menu** key for about three seconds and release.
4. On the Browser Menu, scroll to **2>Web Favorites** with the up/down arrow key.
5. Press **OK**.
6. Scroll to **http://local/waplite.wml**.
7. Press **OK** key to **Go**. (The phone requests data from the device at the address above).

Watch the test set's display. At the bottom, in the active cell window, you can note the status will switch between "*PDP Active*" and "*Transferring*" as datagrams are sent back and forth between the phone and the WAPLite server on the PC.

Note the three sections of the display. Downlink power will flash a result each time the test set transmits to the phone. Counters track data packets and RACH's. Error Reports continuously indicate the quality of the wireless appliance links.

8. On the phone's display, look at the downloaded image and use the scroll up/down key to read the text.
9. If you get a web server error, press the phone's **OK** button to go **Back** to see the image, and quickly scroll to see the text. (There appears to be a bug in this version of the WAPLite data download.)
10. Press the **C** key two or three times to return to the Browser Menu.

Note that the WAPLite image and text is the only information accessible by a WAP browser that is stored in the Infinite WAPLite Gateway at installation. On the PC, note that the Infinite WAPLite window shows one active user, and lists some requests processed.

3.6.3 Browsing “real” Web sites via the WAPLite gateway with the phone

1. The phone’s display should show the Browser Menu. If the phone’s Browser Menu is not displayed, press the phone’s **Menu** key briefly.
2. When the display shows “Access Internet / Select?”, press the **OK** key to select.
3. Hold down the **Menu** key for about three seconds and release.
4. On the Browser Menu, scroll to **2>Web Favorites** with the up/down arrow key.
5. Press **OK**.
6. Scroll to one of the web addresses, or enter a WAP-enabled website address.
Example:
<http://thefunniest.com>
<http://wap.weatheronline.co.uk/wap/city?en72785>
<http://wap.yospace.com>
<http://ayg.com>
7. Press **OK** key to **Go**. (The phone requests data from the website).

3.6.4 Logging IP datagrams while accessing a Web site with the phone

It is interesting to note that during a log of IP datagram transfers, the LAN cable will carry IP datagrams between the phone and the WAP gateway software running on the PC. Simultaneously, the same LAN cable will carry the protocol logging data between the test set and the Internet Explorer software running on the PC.

To demonstrate this, follow the procedures below:

1. On the PC, go back to the active Internet Explorer browser with the 8960 Web control page.
2. Select **Logging Setup** to change the observation points.
3. Select **IP (only)** and **OK**.
4. Select the **Start Logging** icon.
5. On the phone, on the Browser Menu, scroll to **2>Web Favorites** with the up/down arrow key.
6. Press **OK** key.
7. Scroll to one of the Web site addresses.
8. Press **OK** key to **Go**. (The phone requests data from the device at the selected address). Watch the test set display; the active cell window will switch between “*PDP Active*” and “*Transferring*” as IP datagrams are sent back and forth from the phone to the WAPLite server on the PC to the Internet.
9. Select the **Stop Logging** icon and examine the log data on the PC.

3.6.5 Disabling WAPLite software

When you complete your WAP demonstration, disable the WAPLite software to give you the maximum trial usage period.

1. In the WAPLite window, select the **Stats** tab to turn off the WAP Gateway software in your PC.
2. Click on **Remove Service**.
3. When it asks “Are you sure?”, select **Yes** and wait a few moments until the software shuts down and indicates “Active Time: Not Active”.
4. Click **OK** to exit the program.

3.7 Product feature: Additional connection parameters

3.7.1 Changing the broadcast channel configuration

Cell Parameters – The BCH configuration can be changed as desired.

1. Turn the phone off.
2. On the test set, on the **Call Setup** screen, select **Operating Mode** (F1 key).
3. Scroll to **Cell Off**, and press the knob to select.
4. Select **Cell Info** (F6 key).
5. Select **Cell Parameters** (F2 key).
6. Change the cell parameters table values as desired.
7. Press **Close Menu** (F6 key).
8. Press **Return** (F6 key).
9. Press **Operating Mode** (F1 key).
10. Scroll to the active cell and press the knob to select.

3.7.2 Timing advance

Timing advance values can be sent to the DUT. This feature allows you to simulate propagation delays by telling the DUT how much to offset its transmission timing. On the test set, on the Call Setup screen, on the right Call Params column:

1. Press the **More** key until you see “4 of 4”.
2. Press the **Connection Parameters** (F7 key).
3. Scroll in **Connection Parameters** table to **Timing Advance**.

The default value is 0 and the range is 0 to 63.

3.7.3 User-settable uplink flag

The User Settable Uplink Flag (USF) can be set. In a real network, this variable allows the multiplexing of several wireless appliances onto a single uplink PDCH. This parameter tells the wireless appliance when it must transmit and receive. The test set can verify that the wireless appliance performs correctly. (Remember, only one wireless appliance can be in a “connected state” with the test set at a time.) On the test set, on the Call Setup screen, on the right, Call Params column:

1. Press the **More** key until you see “4 of 4”.
2. Press the **Connection Parameters** (F7) key.
3. Scroll in **Connection Parameters** table to **Uplink State Flag**.

The default value is 0 and the range is 0 to 7.

Appendix A: Installing a WAP Gateway into a PC

Equipment¹

Infinite WAPLite Gateway
(by Captaris Inc.)

For more company information:

www.captaris.com

For more product information:

www.infinite.com

If you want to download and install a 30-day free trial of the Infinite WAPLite Gateway program onto your PC, follow these instructions:

1. Connect your PC to the Internet.
2. On the Internet, go to **http://www.infinite.com/captaris/wapg.html**. This web page describes the Infinite WAP Gateway 2.0 software.
3. Read the document to find the download instructions. This may read “...download a 30-Day evaluation copy of Infinite WAP Gateway 2.0 **HERE**.” Click the **HERE** hyperlink.
4. Fill in the Download Form, then select the **Download Now** button at the bottom of the form.
5. A Windows file download dialogue box will appear. Choose **Save this program to disk**, then select **OK**.
6. Choose a file location in the Save As dialogue box.
7. Select **Open** to download the file.

To load the WAPLite software on your PC:

1. Find the executable file you just downloaded, then double-click on it to install it.
2. Follow the Windows installation instructions.
3. Accept the free trial offer, or purchase the software.
4. Return to section 2.2 or section 3.2.

1. Agilent Technologies does not endorse or recommend the products listed below from various companies. This information is provided solely as a service to aid in this demonstration. Use these products at your own risk. Agilent has done minimal testing with them in this application only.

Appendix B: Troubleshooting

Problem	Potential resolutions
Wireless appliance will not attach.	<p>Ensure cable loss is correctly specified in RF IN/OUT Amplitude Offset table</p> <p>Verify test SIM is good and installed correctly</p> <p>Check that cell power is sufficient (increase it up to -35 dBm to overcome interference, or if an indirect RF connection is used between the test set and phone)</p> <p>Try coding scheme CS-1. Go to the Call Setup Screen; Call Parm's column; Menu 2 of 4 (More key); Coding Scheme (F11 key)</p> <p>Verify that the wireless appliance is capable of multislot configuration operation; if in doubt, try 1 down 1up. Go to the Call Setup Screen; Call Parm's column; Menu 3 of 4 (More key); Multislot Config (F7 key)</p> <p>Problem could relate to a connection parameter called TBF Frame Starting Position. Change this parameter under call parameters menu 4. Try an Absolute or Immediate frame starting position. The default is Relative and not all mobiles support this.</p> <p>Test set displays IMSI warning: GSM protocol warning; No IMSI received from MS (using default IMSI) This is often an error in the firmware of the phone. The default IMSI is 001012345678901. This is the IMSI programmed into Agilent or HP test SIM's.</p> <p>If this message is received, it is not possible to make a data connection, unless a SIM with the default IMSI value is installed in the wireless device.</p> <p>Problems establishing a data connection specifically with the BLER Data Conn Type: Try changing the setting of the LLC Frame Check Sequence from Valid to Corrupt. Go to the Call Setup Screen; Call Parm's column; Menu 4 of 4 (More key); Connection Parameters (F4 key); scroll in Connection Parameters table to LLC Frame Check Sequence.</p> <p>Try changing the setting of the BLER Block Polling Interval (default is 1; range is 1 to 32). Go to the Call Setup Screen, Call Parm's column; Menu 4 of 4 (More key) Connection Parameters (F4 key), Scroll in Connection Parameters table to BLER Block Polling Interval.</p>

Problem	Potential resolutions
BLER (Data Connection Type) measurements have problems	<p>Problem solutions noted above for Attach apply.</p> <p>Ensure the MS is capable of GMM_INFORMATION messaging. This is the type of message sent by the test set to provoke an ACK/NACK from the mobile. If the mobile is not capable of GMM information messaging, then the data connection will timeout.</p> <p>One possible solution: set the LLC frame check sequence to Corrupt. This will stop the message getting to GMM and the mobile should still provide the ACK/NACK. Go to the Call Setup Screen; Call Parm's column; Menu 4 of 4 (More key); Connection Parameters (F7 key); scroll in the Connection Parameters table to LLC Frame Check Sequence; change the table value to Corrupt.</p> <p>It is possible that the mobile is capable of GMM messaging but GMM is prioritized too low and the wireless appliance is unable to sustain the link.</p> <p>One solution is to change the BLER Block Polling Interval. This will allow the mobile to send the ACK/NACK less frequently (one negative result: TX measurements will be slower since the mobile is not transmitting every frame.) Go to Call Parameters; 4 of 4; Connection Parameters table.</p>
ETSI Test Mode measurements have problems	<p>Check that the mobile is capable of the ETSI test mode you would like to use; if not, it will not work.</p> <p>Check the same parameters as in "wireless appliance will not attach" above.</p>
The Attach condition terminates prematurely	<p>This may be a connection reconfiguration problem. When any of the connection parameters are reconfigured the connection is terminated.</p> <p>The mobile likely does not have the PACKET_TIMESLOT_RECONFIGURE message implemented. This message is used to change MSTXL, channel, Band, Coding Scheme, Multislot configuration, and offset P0.</p> <p>The solution when using the PACKET_TIMESLOT_RECONFIGURE message is to stop the data connection before changing parameters, then restart the data connection.</p> <p>Alternatively, you can change the message used to change parameters to PACKET_DOWNLINK_ASSIGNMENT; or, for power changes use the PACKET_POWER_AND_TIMING_ADVANCE message. Go to call parameters, 1 of 4.</p>

Problem	Potential resolutions
Internet Explorer cannot access the 8960 welcome page	<p>Check that the LAN cables are good, and are properly connected.</p> <p>If you are using the test set's front panel DATA port, check that the LAN jumper cable is attached on the test set's rear panel between the LAN PORT connector and the ETHERNET TO FRONT PANEL connector. (Note: For minimum RF interference, Agilent recommends using the rear-panel LAN PORT connector.)</p> <p>On the test set's system configuration screen, check that the application is GPRS Lab Application.</p> <p>Ensure that the test set's LAN IP address and Subnet Mask do not include leading zeros. For example 111.022.333.044 is incorrect, "111.22.333.44" is correct.</p> <p>Check that the PC's network card (if present) is fully seated in the PC card slot.</p>
The phone can't access (browse) real Internet sites	It can be difficult to "browse" WAP sites or other locations on the Internet because of firewalls or other restrictions on a specific Intranet. Get help from your Network Administrator.
BER measurement errors occur.	During Data Channel operation, the BER measurement DOES NOT function correctly.
The phone won't transmit IP datagrams in Data Channel functions	Some older versions of Motorola Timeport phones may lose the IP address you have entered. Check this whenever you turn on the phone.
When checking the IPCONFIG of your PC, multiple non-zero IP addresses display	<p>Use the WINIPCFG utility program to help you troubleshoot. Choose Windows Start, select Run, enter winipcfg, then select OK. Select the Release All button to release the addresses. Select the Renew All button to re-enable the active IP address.</p> <p>If an old "artifact" IP address is still present in the PC, you can use a network access program designed to get through a firewall (such as Nortel Networks Extranet Access Client) to reset the "bad" address as follows: Start the Extranet program. Use your SecureID card to enter the password and access your network as normal. Log off the network. Use the MS-DOS IPCONFIG command, or the WINIPCFG utility to check that the errant IP address is reset to all zeroes.</p>
An "assert message" appears when you select IP Data (for E6701A revision A.01.10 only)	<p>If the Test Set displays an assert message when you set the Data Conn Type to IP Data, there are two possible solutions:</p> <p>To temporarily fix the problem, turn the test set power off, then on. On the System Configuration screen, enter a valid address into the Default Gateway field.</p> <p>To permanently fix the problem, upgrade the test set's firmware to a later revision. This firmware can be obtained from the Agilent website at: www.agilent.com/find/8960support</p>

Appendix C. Glossary

BER	Bit Error Rate
BCH	Broadcast channel
BLER	Block Error Rate – an Agilent-proprietary connection mode. Patent pending.
DUT	Device Under Test – typically, a cellular phone or another type of wireless appliance
ETSI A	ETSI test mode A for GPRS transmitters
ETSI B	ETSI test mode B for GPRS transmitters and receivers
GGSN	Gateway GPRS Support Node – provides a gateway between GPRS network and the public packet data network [internet]; connects to HLR; provides location and authentication management; counts packets for billing; and stays constant
GMM	GPRS Mobility Management
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communications
GSM L3	Global System for Mobile Communications Layer 3
HTML	Heuristic Tag Markup Language
IMSI	International Mobile Subscriber Identity
IP	Internet Protocol
L1	Layer One – defines the PDCH physical channel; defines logical channels such as PDTCH and PACCH; and defines coding schemes CS1 to CS4
LAB	Laboratory – where research and development work is done
LAN	Local Area Network
LLC	Logical Link Control – air interface independent; discriminates between data and control signaling
MAC	Medium Access Control – mediates access across multiple mobiles
MS	Mobile Station – typically, a cellular phone
PDCH	Packet data channel
PDP	Packet Data Protocol
RF	Radio Frequency
RLC	Radio Link Control – performs procedures to transfer data
SGSN	Serving GPRS Support Node – controls the connection between network and MS; manages sessions; manages mobility functions like hand-overs and paging; and changes as MS roams
SIM	Subscriber Identity Module
SM	Session Management
SNDCP	Subnetwork Dependent Convergence Protocol – multiplexes multiple application protocols
TBF	Temporary Block Flow
USF	Uplink State Flag
WAP	Wireless Application Protocol
WML	Wireless Markup Language

Additional information

Additional information is available on the Web at www.agilent.com/find/8960support

Related Literature

E6701A Lab Application User's Guide

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